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(Herrich-Schäffer, 1855) (Lepidoptera: Elachistidae)

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**Notes on the bionomy of *Elachista cingillella*
(Herrich-Schäffer, 1855) and *Elachista geminatella*
(Herrich-Schäffer, 1855)
(Lepidoptera: Elachistidae)**

U. Parenti*

Summary

Laboratory rearings permitted to obtain data on the biology and the preimaginal stages, larva and pupa, of *Elachista cingillella* (Herrich-Schäffer) and *Elachista geminatella* (Herrich-Schäffer).

KEY WORDS: Lepidoptera, Elachistidae, bionomy, preimaginal stages.

**Appunti sulla bionomia di *Elachista cingillella* (Herrich-Schäffer, 1855) e
Elachista geminatella (Herrich-Schäffer, 1855)
(Lepidoptera: Elachistidae)**

Riassunto

Allevamenti in laboratorio hanno permesso di ottenere dati sulla biologia e sugli stadi preimmaginali, larva e pupa, di *Elachista cingillella* (Herrich-Schäffer) e *Elachista geminatella* (Herrich-Schäffer).

PAROLE CHIAVE: Lepidoptera, Elachistidae, bionomia, stadi preimmaginali.

**Notas sobre la bionomía de *Elachista cingillella* (Herrich-Schäffer, 1855) y
Elachista geminatella (Herrich-Schäffer, 1855)
(Lepidoptera: Elachistidae)**

Resumen

La cría en el laboratorio ha permitido obtener datos sobre la biología y los primeros estadios, larva y pupa, de *Elachista cingillella* (Herrich-Schäffer) y *Elachista geminatella* (Herrich-Schäffer).

PALABRAS CLAVE: Lepidoptera, Elachistidae, bionomía, estadios preimaginales

Elachista cingillella (Herrich-Schäffer, 1855)

The identity of *E. cingillella* has been clarified thanks to recent research by KAILA & JUNNI-LAINEN (2002) who re-examined the Lectotypus of this species that was already designated by BRADLEY (1963). Thus an interpretative confusion that lasted decades has come to an end. Caused by

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this situation is the wrong attribution to *E. fasciola* Parenti, 1983 (PARENTI, 1996) of the members of some populations of *E. cingillella* from Northwest Italy (Provinces of Alessandria and Vercelli in Piedmont) now identifiable with certainty thanks to the valuable drawings of the genitalia of both sexes that were provided. *E. cingillella* is enrolled, therefore, in the list of Italian Elachistids, while at present the list ejects *E. fasciola*, a good species recorded until now in Japan, Latvia, Russia, and Slovakia (KAILA & JUNNILAINEN, 2002).

All the several Italian and other European specimens I identified up to date as *E. cingillella* are to be referred to *E. metella* Kaila, 2002 (KAILA & JUNNILAINEN, 2002) widespread in central and southern Europe.

Biologic notes

The host plants used in laboratory rearings were *Elymus repens* (L.) Gould and *Brachypodium sylvaticum* (Hudson) Beauv.

The first generation adults were collected in the field in April-May, from these the second generation was obtained in June-July and the third one in August. In the rearing cages and for most of the day, the adults of both sexes remained hidden at the base of the host plants. The males are on the wing since mid afternoon, while the females fly towards the evening and reach the higher leaves of the grasses starting their sexual attraction. Then couples are formed, followed immediately by oviposition. Eggs are laid singly on the lower page of the leaves close to the edges. The mature larva – 6.5-7 mm of length – has a dark olive green colour tending to blackish. After a short straight tract, its mine spreads to the whole leaf.

The larva

The tergal prothoracic plates (Fig. 1) are two wide subtriangular structures that show a sequence of few, 4-5, light areas on the outer edges, that stand out on the strongly sclerified background.

The sternal plate (Fig. 2) has the shape of a stumpy sand-glass showing a slight narrowing in the central part and a marked sclerification in the distal tract. The microsclerifications of the cuticle are obvious on the sides (Fig. 4).

The anal plate (Fig. 3), shaped like a broad shield, is poorly obvious because weakly sclerified.

The pupa

The larva pupates on the host plant or amid plant debris on the ground at the base of the plant, anchored to the substrate also by a thin and loose silk web.

In the pupa (Fig. 8) the anterior lobes of the pronotum have the margin marked by a slight striation. On the surface of the mesonotum there are two long symmetrical series of more or less elongated reliefs that vanish distally. On the sides there are two thin and short poorly prominent crests. The external profiles are irregular, with tiny round protuberances followed in the background by a slight swelling. The fracture line is complete.

On the abdomen, the longitudinal crest, from the metanotum to the last segments, is not much in relief.

The IXth and Xth segments are fused so to form a subtriangular structure with the distal tract narrower and rounded. The cremaster shows two groups of few hooked setae on the symmetrical protuberances of the Xth segment. There are some sparse hooks, always on the Xth, some of which are visible dorsally.

Elachista geminatella (Herrich-Schäffer, 1855)

According to KAILA *et al.* (2001) the so-called *Elachista regificella* Sircom-complex should be represented by three species, *E. regificella* Sircom, 1849, *E. geminatella* (H.-S.), and *E. tengstromi* Kaila *et al.*, 2001.

E. regificella, according to the authors mentioned before, has presently only been recorded from Great Britain: *E. geminatella* and *E. tengstromi* are widely distributed in Central Europe with a great number of records in Great Britain (England).

Biological notes

The material used for this research was obtained from rearings on *Luzula sylvatica* (Hudson) Gaudin and *Luzula luzuloides* (Lam.) Dandy & Wilmott.

STEUER (1980) sub *regificella* described the biology and the larva of *geminatella* as one can see from the drawings he made of the genitalia. The biologic data by Steuer, always very precise, coincide with what was observed during our rearings and are quoted almost integrally: “.....in the surroundings of Bad Blankenburg, I always found it on *Luzula pilosa*generally a mine starts at the base of the leaf and [in some time] it develops into [a longitudinally folded “*Phyllonorycter-type*” mine].....The larva probably changes leaf once or twice... The.....mature.....larva.....of a greyish white colour.....is 5-6 mm long”.

The larva

The tergal prothoracic plates (Fig. 5) are represented by two wide well sclerified shields that occupy almost all the surface of the segment. On the sides of the central fracture line, 3-4 light areas and two others, one on the side of each shield, bear as many setae.

The sternal plate (Fig. 6) has the shape of a stumpy upside down Y with the two distal branches well sclerified, while in the proximal area the sclerification is less marked.

The wide anal plate (Fig. 7) shows numerous setae, much thinner than those that adorn the distal edge of the VIIIth segment.

The pupa

The larva pupates on the ground or on a leaf of the host plant.

The anterior lobe of the pupa (Fig. 9) is wide and deeply incised on the edges. The surfaces of the mesonotum show two wide crests, well marked with many round or elongated concatenated reliefs. On the sides there are two smaller series of tiny round and poorly prominent areas. The external profiles are irregular, with two adjacent protuberances on each side, separated by a wider one thanks to an elongated structure on the background. The central fracture line is complete. The prolongations of the mesonotum are dentellate and visible up to the end of the IInd segment. The longitudinal crest, from the metanotum to the last segments, is thin and rather regular.

The IXth and Xth segments are fused so to form a subtriangular structure with the central part similar to a well developed claw.

The cremaster is made of two groups of long hooked setae on the ventral protuberances of the Xth segment. Few setae are on the two tiny reliefs, always of the Xth. There are some sparse long setae on the edges of the distal end, visible dorsally.

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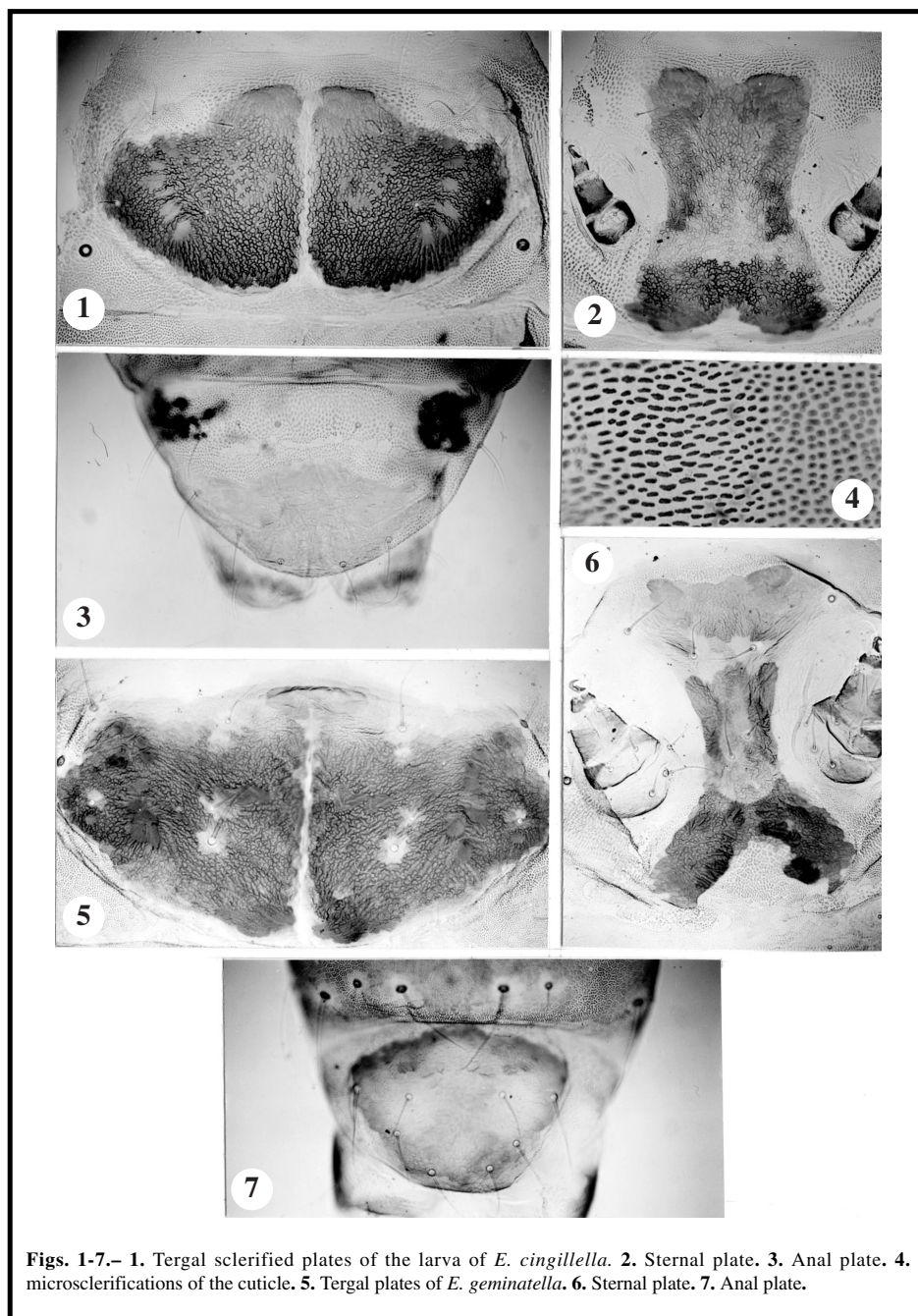
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